SANTA CRUZ BIOTECHNOLOGY, INC.

PDK3 (A-4): sc-365378

BACKGROUND

Pyruvate dehydrogenase kinase family members (PDK1, 2, 3, 4) are serine kinases that catalyze phosphorylation of the E1α subunit of the pyruvate dehydrogenase complex (PDC). PDC activity is controlled through phosphorylation and dephosphorylation of the E1α subunit, which leads to inactivation and reactivation, respectively. PDK3 binding to a free lipoyl domain (L2) in dihydrolypoyl acetyltransferase (E2), which comprises the core of PDC, leads to a large increase in E1α phosphorylation. Upregulation of PDK isoenzymes occurs during starvation conditions, where acetyl-CoA is alternatively generated through fatty acid oxidation. PDKs contain five conserved regions and are mechanistically similar to bacterial His-kinases in that both require histidine residues for activity. In mammals, transcripts for PDK3 are most abundant in testis and moderately expressed in heart and skeletal muscle.

REFERENCES

1. Gudi, R., et al. 1995. Diversity of the pyruvate dehydrogenase kinase gene family in humans. J. Biol. Chem. 270: 28989-28994.
2. Bowker-Kinley, M.M., et al. 1998. Evidence for existence of tissue-specific regulation of the mammalian pyruvate dehydrogenase complex. Biochem. J. 329: 191-196.
3. Mooney, B.P., et al. 2000. Histidine modifying agents abolish pyruvate dehydrogenase kinase activity. Biochem. Biophys. Res. Commun. 267: 500-503.
4. Baker, J.C., et al. 2000. Marked differences between two isoforms of human pyruvate dehydrogenase kinase. J. Biol. Chem. 275: 15773-15781.

CHROMOSOMAL LOCATION

Genetic locus: PDK3 (human) mapping to Xp22.11; Pdk3 (mouse) mapping to X C3.

SOURCE

PDK3 (A-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 7-29 near the N-terminus of PDK3 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PDK3 (A-4) is available conjugated to agarose (sc-365378 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365378 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365378 PE), fluorescein (sc-365378 FITC), Alexa Fluor® 488 (sc-365378 AF488), Alexa Fluor® 546 (sc-365378 AF546), Alexa Fluor® 594 (sc-365378 AF594) or Alexa Fluor® 647 (sc-365378 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365378 AF680) or Alexa Fluor® 790 (sc-365378 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365378 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

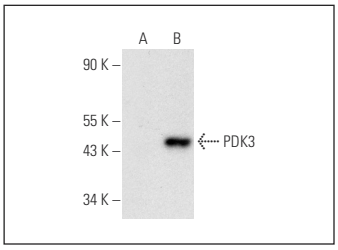
PDK3 (A-4) is recommended for detection of PDK3 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PDK3 siRNA (h): sc-39029, PDK3 siRNA (m): sc-152139, PDK3 shRNA Plasmid (h): sc-39029-SH, PDK3 shRNA Plasmid (m): sc-152139-SH, PDK3 shRNA (h) Lentiviral Particles: sc-39029-V and PDK3 shRNA (m) Lentiviral Particles: sc-152139-V.

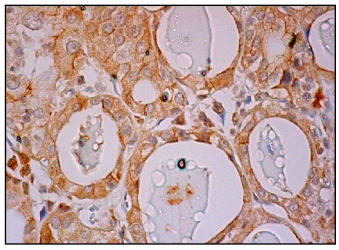
Molecular Weight of PDK3: 47 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206 or PDK3 (m): 293T Lysate: sc-122470.

DATA



PDK3 (A-4): sc-365378. Western blot analysis of PDK3 expression in non-transfected: sc-117752 (**A**) and mouse PDK3 transfected: sc-122470 (**B**) 293T whole cell lysates.



PDK3 (A-4): sc-365378. Immunoperoxidase staining of formalin fixed, paraffin-embedded human thyroid gland tissue showing cytoplasmic and membrane staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Lu, T., et al. 2020. Up-regulation of hypoxia-inducible factor antisense as a novel approach to treat ovarian cancer. Theranostics 10: 6959-6976.
2. Kang, H.J., et al. 2021. Pyruvate dehydrogenase kinase 1 and 2 deficiency reduces high-fat diet-induced hypertrophic obesity and inhibits the differentiation of preadipocytes into mature adipocytes. Exp. Mol. Med. 53: 1390-1401.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.